REMARKS

Claims 1-14 are pending in the application and stand rejected. Claims 1-2 and 7 have been amended. The claim amendments should in no way be construed to be acquiescence to any rejection based on alleged prior art. The amendments to the claims are made solely to expedite the prosecution of the application. Accordingly, none of the claim amendments narrow the claims as originally presented. Applicant reserves the option to further prosecute the same or similar claims in the instant or subsequent patent applications.

Rejection of Claim 1 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Schneiderman In View of Saulpaugh

Claim 1 as amended recites a method for a mobile agent object to dynamically extend its capabilities including configuring the mobile agent object to install a service object executable in a mobile-agent runtime environment. The mobile agent object is operable to execute in a first electronic device, halt execution in the first electronic device at an execution state, be transplanted to a second electronic device, and resume execution from the execution state in the second electronic device.

As acknowledged by the Examiner, Schneiderman fails to teach or suggest configuring a mobile agent to install a service object to be executable in a mobile-agent runtime environment. However, contrary to the Examiner's stated position, Saulpaugh likewise fails to teach or suggest configuring a mobile agent to install a service object to be executable in a mobile-agent runtime environment.

First of all, in no manner does Saulpaugh teach or suggest a mobile-agent, or any other, object operable to execute in a first electronic device, halt execution in the first electronic device at an execution state, be transplanted to a second electronic device, and resume execution from the execution state in the second electronic device. This limitation is required by amended claim 1.

Secondly, referring, *e.g.*, to FIGS. 2-4 and paragraphs 33-36 of the application, a delivery-mobile-agent-object 200 uses the API of a service-delivery service object 210 to install
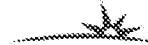
its native-service module 301, its service-object byte code 302, and its service-module runtime data 304 into a mobile-agent runtime environment 154 according to computer-executable instructions included in installation instructions 303. In supporting his position that Saulpaugh teaches configuring a mobile agent to install a service object to be executable in a mobile-agent runtime environment, the Examiner cites various portions of columns 29-30 of Saulpaugh as teaching that a "method gate may be generated on [a] client" and that "when a client uses a method gate to remotely invoke a service method, a reference to the method results may be returned from the service method gate instead of the actual results. From this reference, a results gate may be generated to access the actual result." The Applicant's attorney fails to see how these portions of Saulpaugh in any way disclose what the Examiner suggests.

Referring, *e.g.*, to FIGS. 8-9 and col. 15, lines 10-39 of Saulpaugh, a basic model of a distributed computing environment is disclosed. The distributed computing environment may connect clients 110 to services 112 throughout a network. A service 112 publishes an advertisement 132 for itself (represented in XML) in a space 114. The advertisement 132 specifies the service's XML schema and URI address. Then, a client 110 may look up the advertisement 132. The client 110 may use the advertisement 132 to instantiate a gate 130. The gate 130 allows the client 110 to run the service 112, by sending (and receiving) XML messages to (and from) the service 112. Some results of running a service may be returned to the client in an XML message. However, since other results may be too large for a small client to receive and consume at once, a service 112 may put those results or an XML representation of the results 134 in a space 114, as shown in FIG. 9, and return them by reference (in an XML message) to the client 110, rather than by value. Examples of methods of returning a reference to results include, but are not limited to: returning in the message a URI referencing the results in a space, and: returning in the message an XML document including the URI of the results. Later, the client 110 may access the results, or pass them by reference to another service. The space in which results may be stored may be different from the space in which the service is advertised.

As such, assuming solely for the sake of argument that Saulpaugh teaches or suggests the involvement of mobile agent objects as contemplated by claim 1 (which it does not), the Applicant's attorney respectfully submits that the above-described functional interrelationships among clients 110, services 112 and gates 130 (as well as their counterparts described elsewhere

in Saulpaugh with reference to alternative embodiments) in no manner include configuring a mobile agent to install a service object to be executable in a mobile-agent runtime environment. There simply is no service-object installation taught or suggested by Saulpaugh. If the Examiner disagrees with this position, and to better enable a fair chance for the Applicant to respond, the Examiner is respectfully requested to point out the specific elements of Saulpaugh considered to be the mobile agent and service objects, the specific activity considered to be configuring the mobile agent to install a service object, and the specific reference to installation of the service object. Alternatively, the Examiner is respectfully requested to withdraw this rejection.

Rejection of Claims 2-11, and 13 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Schneiderman In View of Yokoyama

Claim 2

Claim 2 as amended recites generating in the first host computing environment a first mobile-agent object operable to navigate to the second host computing environment and install a service object executable in the mobile-agent runtime environment and that may be called by any process or subsequent mobile-agent object that is executing in the mobile-agent runtime environment.

For example, referring, *e.g.*, to FIGS. 2-4 and paragraphs 33-36, a delivery-mobile-agent-object 200 includes a number of service objects 220 and service modules 215 that are to be installed. The service objects 220 and service modules 215 are stored within the service-object byte code 302 and the native-service module 301, respectively, prior to installation. The delivery mobile agent object 200 uses the API of the service-delivery service object 210 to create binding relationships 230 to map the installed native service module 301 to the associated service object byte code 302. That is, the newly installed service objects 220 that came from the service-object byte code 302 and the newly installed service modules 215 that came from the native-service module 301 are mapped with various binding relationships according to the installation instructions. Finally, the delivery-mobile agent object 200 may be ejected from the mobile-agent

runtime environment 154, thus, completing the installation method. Now, the newly installed service object may be called by any process or object that is executing in the mobile-agent runtime environment.

As acknowledged by the Examiner, Schneiderman fails to teach installing a service object to be executable in a mobile-agent runtime environment. However, contrary to the Examiner's stated position, Yokoyama also fails in any manner to teach or suggest a mobile object capable of installing service objects, or for that matter, anything, executable in a mobile-agent runtime environment. In fact, and as stated by Applicant's attorney in a previous paper, a thorough reading of Yokoyama reveals that the Yokoyama reference fails to even so much as use the terms "install," "installation" or the like. Referring, *e.g.*, to FIG. 2 and paragraph 45 of Yokoyama, a mobile agent 210, when traveling, executes service programs (not the same as a "service object"), collects data such as account information at each home terminal, and returns to a server 100 when its traveling is completed. More particularly, and referring, *e.g.*, to FIG. 9 and paragraph 58, the mobile agent 210 is formed from a mobile agent identifier 900, a traveling list 901, a center signature, and, for each service program contained in the mobile agent, the service program main body and a collected data list 902 storing the results of each service program. The traveling list 901 is formed from identifiers for the traveling destination home terminals and flag data indicating which of the service programs contained in the mobile agent 210 are to be executed. In the example shown in FIG. 9, the flag data in the traveling list 901 indicates that service A, service C, and service D are executed at the home terminal a and service A and service B are executed at the home terminal b.

As such, it is critical to note that, while the mobile agent 210 of Yokoyama does contain service programs that may be executed at respective terminals (*i.e.*, host computing environments) as the agent travels from terminal to terminal, these mobile agents do not in any manner install such service programs at the respective terminals such that the service program may be called by a different process or subsequent mobile agent traveling to such terminal. There is simply no teaching or suggestion in Yokoyama of configuring a mobile agent object to install a service object executable in the mobile-agent runtime environment, so that, as required by amended claim 2, such service object may be called by any process or subsequent mobile-

agent object that is executing in the mobile-agent runtime environment. Accordingly, the Examiner is respectfully requested to withdraw this rejection.

Claim 7

Claim 7 is patentable for reasons at least similar to those discussed above with reference to claim 2.

Claims 3-6, 8-11 and 13-14

Claims 3-6, 8-11 and 13-14 are patentable by virtue of their respective dependencies from claims 2 and 7.

Rejection of Claim 12 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Schneiderman In View of Yokoyama and Further In View of Wang

Wang fails to supply the teachings missing from Schneiderman and Yokoyama, namely a data structure comprising a first instruction set that when executed by a computing device causes the data structure to navigate from a first host computing environment to a second host computing environment having a mobile-agent runtime environment, and a second instruction set that when executed by a computing device causes the installation of a service object executable in the mobile-agent runtime environment and that may be called by any process or subsequent mobile-agent object that is executing in the mobile-agent runtime environment. As such Schneiderman, Yokoyama and Wang, taken each alone or in combination, fail to teach or suggest the limitations of claim 7. Accordingly, claim 12 is patentable by virtue of its dependency from claim 7.

Rejection of Claim 14 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Schneiderman In View of Yokoyama and Further In View of Saulpaugh

Saulpaugh fails to supply the teachings missing from Schneiderman and Yokoyama, namely configuring a mobile agent object to install a service object executable in the mobile-agent runtime environment, so that, as required by amended claim 2, such service object may be

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called by any process or subsequent mobile-agent object that is executing in the mobile-agent runtime environment. As such Schneiderman, Yokoyama and Saulpaugh, taken each alone or in combination, fail to teach or suggest the limitations of claim 2. Accordingly, claim 14 is patentable by virtue of its dependency from claim 2.

CONCLUSION

In view of the above, Applicant requests a finding of allowability for all pending claims. If the Examiner has any questions, the Examiner is invited to contact the undersigned. **If the Examiner does not agree with the Applicant's position that all pending claims are allowable, the Examiner is respectfully requested to contact the undersigned to arrange a telephonic discussion of the application prior to issuing an Office or Advisory Action.**

Respectfully submitted,

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/P.G. Scott Born/

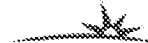P.G. Scott Born
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